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ABSTRACT

Fourteen school-to-work programs characterized by strong work-based learning components and solid employer involvement were examined in a 3-year study to identify pedagogical factors associated with successful work-based learning programs. The main data collection activities were as follows: site visits to the 15 programs to interview faculty, staff, students, and employers and to observe any classroom-based links to the work-based learning components; 2 telephone surveys (a survey of employers participating in the programs and a survey of employers not participating in programs); and case studies of 5 of the programs that included observations and interviews with 26 student interns. The researchers used a task analysis framework that was designed to analyze the situated pedagogy of particular work contexts. The following pedagogical strategies were identified and analyzed: front-loaded instruction; on-the-job training; just-in-time instruction; back-loaded instruction; mutual self-instruction; laissez-faire instruction; observation; and mentoring. Among the pedagogical tactics used within each strategy were the following: lecturing; tours; modeling/demonstrating; dry runs; giving orders; helping out; coaching; critical feedback; testing and checking; storytelling; reminding; trial and error; and practice. The case studies emphasized the importance of educators enhancing students' learning opportunities at the workplace with connected activities and exercises back at school. (Contains 22 references.) (MN)

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Pedagogical Strategies for Work-Based Learning

Katherine L. Hughes
David Thornton Moore

IEE Working Paper No. 12
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ABSTRACT

In recent years, researchers and educators have been paying increasing attention to work-based learning as a promising educational strategy. In the school-to-work literature, many lists of the potential purposes or benefits of work-based learning to students can be found. However, despite increased enthusiasm over work-based learning and anecdotal evidence supporting it, there have been few empirical studies that test whether and how students are actually benefiting. Further, while many programs are having success in inducing employers to offer work-based learning placements, it is probably overly optimistic to require employers to undergo training and to expect them to act as teachers. Yet there are ways for school personnel to examine workplaces, oversee internships, and create classroom-based assignments and activities, so that work-based learning is educational. In this paper, we give guidance as to how to achieve quality internships, by laying out a framework through which an educator might analyze the situated pedagogy of a particular work context, and describing methods used in schools to ensure that students' work experiences yield learning. That is, we will explore the different ways work-based learning is organized at the workplace, and how it can be enhanced in the classroom.

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INTRODUCTION

In recent years, researchers and educators have been paying increasing attention to work-based learning as a promising educational strategy. A main provision of the 1994 School-to-Work Opportunities Act was to make work-based learning a significant part of the education of America's youth. Many believed that, rather than offering work-based learning only to students in traditional vocational programs, all students could benefit from a program of learning distinct from that which takes place in the classroom. Hence, many schools and even entire school districts have been implementing internship programs, and students enrolled in these programs across the country are now having a wide range of experiences at workplaces.

In the school-to-work literature, many lists of the potential purposes or benefits of work-based learning to students can be found (Urquiola, Stern, Horn, Dornsife, Chi, Williams, Merritt, Hughes, & Bailey, 1997; Hamilton & Hamilton, 1997; Pauly, Kopp, & Haimson, 1995; Pedraza, Pauly, & Kopp, 1997). The following goals are widely cited: (1) the acquisition of occupational, technical, or workplace readiness skills; (2) career exploration and planning, which can include learning about all aspects of an industry; (3) psycho-social development and preparation for adult responsibilities; and (4) reinforcement of academic learning, through contextual or situated learning, and through increased motivation. However, despite increased enthusiasm over work-based learning and anecdotal evidence supporting it (Bailey & Merritt, 1997; Olson, 1997), there have been few empirical studies that test whether and how students are actually benefiting in any of the above ways.

Bailey et al. point out that we do not yet have good conceptions of, or measures of, internship quality (Bailey, Hughes, & Barr, 1998). Through a survey of employers participating in five different work-based learning programs, these researchers found that, on average, interns spent only 14 percent of their time on the job learning (as opposed to working). As for what it is student interns might be learning, Hamilton and Hamilton (1997), in their study of 100 students participating in the Cornell Youth Apprenticeship Demonstration Project, found that the youth did gain job-related skills and knowledge, but there were no effects on their academic achievement. Participating employers that were interviewed said that teaching the youth apprentices personal and social competence was more complex than teaching them technical competence. From a survey of students in two different work-based learning programs, Stasz and Brewer (1998) found that while overall the students rated their work-based learning experiences positively, they primarily learned work-readiness-related attitudes and behaviors, and they perceived links between the internships and the classroom to be weak. Another study that included observations of students at worksites had positive findings regarding learning opportunities at the worksites (Stasz & Kaganoff, 1997).

The time, energy and money required to implement work-based learning programs are justified only if internships have more educational value than the after-school jobs that the majority of American high school youth already hold.[1] One way to ensure this is to have the adults at the worksites actually teaching the student interns. As

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[1] In 1992, only 31.8 percent of senior high school students did not work during the year (National Center for Education Statistics, 1998).

Stasz and Kaganoff (1997) point out, "It is curious that educators and the public often express concern when teachers can teach with emergency credentials or with little formal knowledge of the subject matter, but seem oblivious to the qualifications of adults who teach students at work" (p. 77). These authors recommend providing appropriate training to interns' supervisors and monitoring their performance as teachers. Hamilton and Hamilton (1997) also emphasize that "clear teaching roles and responsibilities" should be assigned to worksite coaches and mentors (p. 40).

While many programs are having success in recruiting employer participants (Bailey, Hughes, & Barr, 1998; Hughes, 1998; Pedraza, Pauly, & Kopp, 1997), it is probably overly optimistic to think that requiring them to undergo training and monitoring won't lead to a mass exodus from the programs. Yet there are ways for school personnel to examine workplaces, oversee internships, and create classroom-based assignments and activities, so that work-based learning is educational. In this paper, we will give guidance as to how to achieve quality internships, by describing what educators should look for at worksites, and describing methods used in schools, to ensure that students' work experiences yield learning. That is, we will explore the different ways work-based learning is organized at the workplace, and how it can be enhanced in the classroom.

Pedagogy is normally defined as a conscious set of principles and strategies used by teachers in instructing their students; the term is usually applied only to school-based practices. We suggest that pedagogy can be discovered in any social context where knowledge is distributed and used. In a place such as a worksite, participants use various

kinds of knowledge to structure their relationships, their use of resources (social, informational, and material), and their activities, in a concerted effort to achieve certain shared purposes. Pedagogy can be defined as the social organization of the social activities, organizational structures and cultural practices by which newcomers, such as student interns, come to encounter and engage that knowledge. The process of becoming involved in the knowledge-use in a community of practice, as Lave and Wenger (1991) argue, is learning; pedagogy is the social organization of that process.

Pedagogy is thus situated in the social context, and as such, occurs naturally as part of the environment. Sometimes those processes are *intentional* in their effect on learning: People organize aspects of their activities explicitly to ensure that knowledge is appropriately and effectively distributed. Depending on whether they are in a workplace, a classroom or a household, they might refer to this element of work as on-the-job training, instruction, or self-development, but for that moment, the learning is the central purpose of the work activity. In the workplace, of course, the longer-range goal is to enhance the quality and efficiency of the production process; but for the time being, someone wants someone to learn something. On the other hand, the pedagogical features of work may be *incidental*, a by-product of activity the primary purpose of which is *not* someone's learning. As we will see in detail below, people at work sometimes learn simply by virtue of taking part in the practices of their colleagues. In the process of doing the work, they encounter new information and ideas, they reorganize their conception of certain phenomena, and they reconstrue their strategies for problems and challenges. Our

definition of pedagogy includes both the intentional and the incidental, whether in the workplace or in the classroom.

METHODOLOGY

This paper is based on a large research project conducted over three years on fourteen school-to-work programs around the country. The sites were selected based on their strong work-based learning components and solid employer involvement. The first part of the project examined the programs' success with regard to employer recruitment and retention, and employers' motivations for participating (see Bailey, Hughes, & Barr, 1998; Hughes, 1998). Visits were made to the programs to interview faculty, staff, students, and employers, and to observe any classroom-based links to the work-based learning components. Two telephone surveys were also conducted, one of employers participating in the programs and one of non-participating employers. In the second part of the project, we looked more closely at the actual work-based learning activities. At each of five programs, several student interns were interviewed and observed over the course of their internships. In total, data were collected from observations and interviews of 25 student interns. The students were placed in a variety of workplaces, ranging from small non-profit organizations to large Fortune 500 companies, and they worked in many different fields, for example, health, business and administration, education, the arts, and construction. This is not a representative sample; our findings will be used only to illustrate different strategies for, and types of learning in, different workplaces.

WORKPLACE-BASED PEDAGOGY FOR WORK-BASED LEARNING

This section of the paper lays out a framework through which an educator might analyze the situated pedagogy of a particular work context. The purpose of this is to provide tools educators can use to identify the potential for learning in a workplace, and to help them make decisions about when and where teaching interventions might be necessary. First, we identify the phases of work activity through which student interns engage knowledge. Then we suggest some factors that may shape the particular learning process. Finally, we classify certain pedagogical strategies and tactics that appear in real-world work sites. Using the field notes from two of our intern observations, we will illustrate the potential utility of this framework, demonstrating the insights that can be gained through this kind of investigation.

The Task Analysis Framework

Much of our basic approach to the analysis of situated pedagogy has emerged from an earlier study of interns at the School for External Learning, a big-city alternative school that gives students experience in a broad array of workplaces (cf. Moore, 1981a, 1981b, 1986). The fundamental premise of this framework is that participants in any activity system socially organize the process through which knowledge is defined, distributed and used. When a newcomer is introduced into an activity system or, more specifically for our purposes here, a workplace, his or her participation can be described as moving through several phases, focusing on the way specific tasks are set up, performed and assessed. Thus, the first stage in the analysis of situated pedagogy is to

locate the work tasks that the focal person engages in, and then to determine how those tasks are established, accomplished and processed.

Establishing. First, the person has to discover the terms of the task: what needs to be done, how the work should be performed, and the criteria by which performance will be judged. The establishing phase may vary on several dimensions: *who* initiates it (the worker herself, a colleague or supervisor, a client or customer); *when* it happens relative to the work itself; *how explicit* it is in terms of directions and criteria; and what *resources* (information or materials) are provided.

Accomplishing. Next, the person has to carry out the task, using the information and directions provided earlier, as well as devising new knowledge in the process. There are several components of this phase: *who* takes part (the newcomer alone, or a set of colleagues and/or supervisors); *timing* (how long the work can take, and whether it is done in one interrupted period or intermittently); the *relations* among the participants (the distribution of power and status, and the division of labor); and the *resources* used in the performance of the task.

Processing. Finally, the worker may get feedback on the performance of the task, and may have an opportunity to rethink strategy and tactics. This information helps her determine how well she did the work and consider how she might do it differently in the future. Again, there are several variables in this element of the episode: *who* provides the feedback or structures the rethinking (the worker herself, a colleague, a supervisor, or a client or customer); the *timing* of the processing (during the work, intermittently, or in a

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post-task event); and the *form* and *channel* of the feedback (verbally or in writing; formal or informal).

In the course of these three phases of the task episode, the worker may gain access to a number of forms of knowledge-in-use. To understand the pedagogical features of the situation, we need to look at the process by which that participation is organized.

Factors Shaping Pedagogy

The specific texture of the pedagogical process in any given situation will vary depending on a number of general factors. Thus, whether a particular workplace can provide a good or poor learning environment for a student intern will depend partly on these factors, which educators can examine (see Table 1).

Features of the work. The way a newcomer gets to participate depends partly on the nature of the work itself. The tasks may be explored along two basic dimensions: *socio-cognitive demands*—what specific kinds of knowledge and skill the worker needs to be able to use in order to perform the work competently; and *pragmatics*—the impact the task has on the larger work process, on the organization, and on the relative prestige or status of the worker.

Access characteristics of the knowledge. Perkins (1993) suggests another important aspect of the pedagogical features of a situation (although he does not use that term): the "*access characteristics* of the system –what knowledge it includes access to, via representations that afford what access to information, by way of what retrieval paths for accessing the information, and with what access to further constructions based on that knowledge" (p. 91). Pedagogical strategies will vary depending on what kinds of

knowledge are available, how they are represented, what it takes to get access to them and what participants can do with them to formulate further knowledge. Partly, the issue is the *location* of the knowledge: in heads, in documents, in tools, in practices; and partly the issue is who can gain *access* to it and what they must do to achieve that access. These questions are partly technical (what you have to be able to do, to read, to understand) and partly political (who is allowed access, and who is not).

Another scheme for describing the knowledge features of the workplace is Basil Bernstein's (1975) concepts of *classification* and *frame*. Both the division of knowledge into categories (classification) and the determination of who controls access to that knowledge (frame) are socially defined and politically enforced. A workplace in which classification is weak—in which knowledge is lumped into broad, amorphous and permeable types—is a very different learning environment from one in which knowledge is strongly segmented into neatly constructed categories. And one in which high-level managers maintain a monopoly control over access to knowledge, as in a Taylorist operation, is very different from one in which anyone can choose to learn anything.

Features of the work context. Another category of factors shaping the situated pedagogy relates to the organizational context within which the work proceeds. How knowledge is distributed—how people learn—varies depending on such elements as the *social organization*, the *workplace culture*, and the *production process*. The social organization refers to the nature and extent of hierarchy and the distribution and use of power within the organization. An organization with highly segmented roles, in which each status is responsible for a limited range of work and, therefore, knowledge, is a very

different learning environment from one in which there is only one generalized status (tour guide, for instance) and everyone does roughly the same things, using roughly the same knowledge.

Workplace culture refers to the beliefs and practices shared by participants in the organization around concepts like production, status, and learning (Applebaum, 1984; Hamada & Sibley, 1994). An organization in which members compete with each other for limited rewards, for instance, provides learning opportunities very different from those in a place where people see themselves as collaborating in a common enterprise. The production process refers to the social and technical organization of the process by which work gets done, including the division of labor, the use of tools and practices, and the technical steps in production. An assembly-line process, for instance, gives each participant far less exposure to production knowledge than does a multi-skilled work team.

Features of the larger environment. Things happening outside the immediate organizational context may also affect the distribution of knowledge-use inside. These aspects of the broader environment include: *market conditions*, the extent of competition among organizations in the same niche; *regulations*, the imposition of work rules, licensing procedures and other directives on the operations of the organization by government, unions or other bodies (Appelbaum & Batt, 1994); and *technology*, the pace and nature of change in the technologies used in the organization (e.g., the creation of new computer systems or professional practices), and the difficulty of mastering these new tools.

Table 1: Factors Shaping Pedagogy: Workplace factors that help to determine the potential for learning by an intern

	More learning	*Less learning*
socio-cognitive demands	the intern's tasks require knowledge and skill	the intern's tasks are not challenging
social-interactional demands	the intern has heavy contact with others of varying statuses and roles	the intern has little contact with others
pragmatics	the intern's tasks are important to the organization	the intern's tasks are peripheral to the organization
access characteristics	access to the knowledge of the workplace is available to the intern	access to the knowledge of the workplace is unavailable
classification	weak: less division of workplace knowledge	strong: workplace knowledge is highly segmented
frame	weak: access to the knowledge of the workplace is not controlled	strong: access is highly controlled
social organization	workplace roles are not highly segmented or	workplace roles are highly segmented and hierarchical

	hierarchical	
Workplace culture	workers believe in collaboration and learning	workers are status-oriented and competitive, and the intern is given low status
Production process	less division of labor; work teams are used	high division of labor; Tayloristic

Fred: The veterinary clinic

On a country road in New England, an 18-year-old high school student named Fred interned in a small animal hospital. Two veterinarians share the practice, and they employ several technician-assistants. Most of their work is with dogs, cats and other small pets, and covers the usual gamut of services: spaying and neutering, shots, treatment of various illnesses, and occasional surgeries. Fred's role in the animal hospital included a number of peripheral functions: filing patient records; cleaning the examination/operating room after treatments; cleaning the cages and feeding the animals; sterilizing surgical instruments before operations; restocking equipment in the supply closet; making "call-backs" to the owners of recently treated pets to check on their condition; mailing out vaccination reminders; and answering the phones.

In general, the *socio-cognitive demands* of Fred's work were minimal; he did not need to use very much technical knowledge or skill, and he rarely encountered a snag that required problem-solving. Sterilizing the surgical instruments and filling syringes with rabies vaccine demanded a degree of care and familiarity with a specific procedure, but

were not hard to master. Doing the call-backs required some interactional and communicational skill, something that Fred recognized he needed practice in. At one point, Fred tested fecal samples for worms and other conditions; his judgment had to be confirmed by a technician. At another, an assistant told him to inject some fluid into a cat, and then left the room; he had to guess how to insert the needle. But most of the work could be mastered very quickly. The *pragmatic features* of the work were not very compelling; the tasks needed to be done, but were not at the core of the organization's mission. Rather, the work represented what might be called the odds and ends of clinic maintenance. Nor did the chores give Fred much status within the work group; although he was treated in a perfectly friendly and respectful fashion, he was clearly at the bottom of the hierarchy.

The *social means* by which Fred's tasks were established, accomplished and processed reflected their rather mundane and routine character. More often than not, the student himself undertook the chores without explicit instructions: when a surgery was completed, he cleaned up; when a phone rang, he answered it; when records piled up, he filed them. He initiated each instance of the chores simply by recognizing that it needed to be done and taking action. Most of his tasks were established early on as a part of his routine. His supervisors had originally asked him to do the work, but after awhile, they did not need to tell him each time. They had shown him how to do each piece—prepare a "neuter pack" for the spaying operations, wash the towels, clean the operating area—and then left him to his own devices. This perfunctory instruction reflected the rather low-demand, low-status character of the tasks.

The *accomplishing* phase of Fred's work generally involved solo activity: cleaning up after the doctors and assistants had left the surgery, preparing neuter packs, filing. On occasion, he worked with another member of the staff: putting away large boxes of supplies and pet food, testing fecal samples. Sometimes he assisted in more complex activities, as when he helped a technician get a cat ready for an X-ray. The resources necessary for carrying out the tasks were nearly always available, and the procedures were clear and generally unproblematic.

Fred seldom got explicit *processing* for the tasks he performed. Rarely did anyone tell him that he had done something well or poorly, or how he could do it differently. That absence points again to the routine and low-complexity character of the work; there was not much he could do wrong. In one unusual task episode when he carried out a somewhat complicated and risky task, the job was established quickly and with little instruction, accomplished by guesswork, but processed somewhat more fully:

> L— (a technician) then called out to Fred from the other room; she needed his help with the cat, which was lying on a table. She handed Fred a needle which was attached to an IV bag . . .and told him to stick the needle in the cat. She pointed out the fluid level in the bag and told Fred the amount the cat needed. Then she ran off. Fred seemed surprised; he looked at L— as she ran off, and said he wasn't sure where to stick the needle. But L— was already in the next room. So he grabbed some skin at the nape of the cat's neck, and slid the needle under the skin. He stood there for several minutes as he watched the fluid level in the bag. Finally (the vet) came over to check on what he was doing and Fred said something about inserting the needle subcutaneously, was that right? (The vet) said that was indeed right. She looked at the fluid bag and asked Fred at what level it had started. He replied, and she said he could adjust it so that the fluid dripped out more quickly (IEE, Observation xiiia3: 269-280).

The researcher wrote in her field notes, "In this situation, all the employees were so busy that Fred was spontaneously given a task that someone else would have normally performed, and that he had never done before. While at first he was shaken a bit, he

performed the task correctly" (282-284). This episode stands out because it was so different from everything else Fred did. Luckily, the vet managed to process the last stage of the work, so she could confirm Fred's work and even suggest how he might do it differently the next time. The fact that she did that testifies to the unusual importance of this task. Not much needed to be said about the quality of his performance on routine tasks.

Fred's participation in the stock of knowledge in the animal hospital was rather marginal, low-demand, low-intensity, low-prestige, and it is not difficult to understand why. The *organizational structure*, despite the small size of the work group, was highly segmented. The doctors clearly maintained a monopoly over the core elements of the knowledge-in-use. Partly the strong classification and frame reflected the cognitive and technical complexity of that knowledge: One needs a good deal of understanding of science and a strong grasp of technical procedures and materials to do the work of a veterinarian. Some of the technicians had intermediate levels of knowledge in those regards, but the student certainly did not enter with that expertise and could not be expected to develop it quickly enough to perform functional tasks in the medical domain. Partly the division of labor was driven by government *regulations*, particularly by licensing requirements for people who provide professional health care to animals. And partly it was a function of the traditional *culture* of medical workplaces, in which doctors have long enjoyed high status and power.

Josè: Hotel housekeeping office

A student in a travel and tourism academy in a big-city high school interned as an assistant to the manager of the housekeeping staff in a large hotel. The staff comprises three types of workers: room attendants, housemen, and engineers. Room attendants clean guest rooms, while housemen and engineers perform various upkeep and repair jobs. The manager of the department is responsible for assigning jobs to all three groups, for supervising their work, and for inspecting the condition of the hotel rooms and common areas.

Josè's specific tasks included aspects of all those functions. He spent much of the first day of observations in the office, answering telephone calls from guests and housekeepers.

> When he picks up the phone, he says, "Good morning, housekeeping, this is Josè." Then he writes down what the other person says. If it is a guest making a request for a particular item (ironing board, hair dryer), he has a form to fill out. Then he has to look around for a room attendant, or call one up, and ask them to deliver the item. If there is a problem with a light bulb or something like that, he has to convey the message to the engineers or the housemen. He showed me an archaic-looking machine with lots of different keys. He showed me how to type in the room number, and then "need" and then "bulb." This machine then transmits that message to the front desk or to the engineers, depending on where it is sent. J also has to write down everything in the log book; he said he is supposed to do that first, before even carrying out the task (Observation xvia1: 94-103).

He also took calls from housekeepers reporting that specific rooms were ready; he entered the information in a customized computer program, so the front desk could know what was available. Some of the calls were non-routine: A guest wanted matches, and no one could find any; a man not affiliated with the hotel was seen in a hallway with a bell cart, and security had to be called. Twice during the study, Josè was assigned to inspect

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the hallways of the hotel, making note of stains, broken ice machines and other problems. On several days, he had to inspect the guest rooms for maintenance needs, so his manager could submit a comprehensive report to the higher-ups.

In general, chores were *established* by Mr. M— or another supervisor acting in his place. Frequently—as with the hall and room inspections—Josè *accomplished* the work by himself; sometimes he collaborated with other subordinates in the office. The *processing* came in several ways. First, Mr. M— occasionally commented specifically about Josè's performance, or suggested new ways of doing things. Second, Josè sometimes witnessed Mr. M—'s feedback to other members of the staff, which was often harsh. Third, Mr. M— and Josè talked about standards in work, showing the latter both about the details of the norms and about the underlying ideology: hard work is necessary and good, and front-line workers tend to fall short of the standards of excellence and need to be closely monitored. Moreover, Josè heard Mr. M— compliment his diligence and skill, noting that several other interns had not made the grade in that respect.

On the surface, these tasks appear to be rather mundane and lacking in educational substance. But the work stood at the hub of a complex system, giving Josè exposure to a significant array of knowledge: about the structure of operations in a large organization (the relations among housekeeping, the front desk, purchasing and receiving, and higher management); about power dynamics in a hierarchy; about disparate workplace norms and cultures; about business applications in computers (spreadsheets, communications systems); about the strategies and tactics of management in a largely blue-collar operation.

That is, the *socio-cognitive demands* of Josè's work went beyond the obvious ability to answer phones, fill out charts and find carpet stains. Since the demands on his boss, Mr. M— were constant, Josè had to learn how to decide when to interrupt him and when not to; that required an evolving sense of priorities among apparent emergencies, which in turn called for a fairly subtle sense of the relations among different operations in the hotel. If one guest wants matches and another needs a wheelchair, while someone has reported an intruder in the hallway, and three housekeepers are waiting for their assignments, what do you do first? Moreover, some of the inspection work required a degree of judgment: How badly does a lampshade need to be stained before you write it up for replacement? How do you decide that question: on the basis of guest complaints or of maintenance costs and corporate profits? Thus on a socio-cognitive level, the knowledge-in-use was complex but not beyond the grasp of an intelligent teenager (as the veterinary and medical knowledge was).

Finally, the *social-interactional demands* of the job were fairly complex. Josè's phone contact with guests, some of them annoyed about problems in their rooms, had to be conducted with some tact (although the field notes indicate that he was not strong at this skill in the early days). He was also placed in an intermediate position in the staff, between his manager and the maintenance staff. He had to read situations to know how to act with housekeepers, with front desk people, with his boss. (Again, he was sometimes abrupt in this interaction; he could have used some feedback on employee relations.) This process involved his developing an identity as a member of management, and taking on the demeanor and values of that role. For instance, he frequently mentioned how the

housekeepers tended to slack off, and suggested that they had to be supervised closely so they would do their jobs; in that stance, he adopted a management perspective.

The *pragmatics* of the work relate to the last point. In some respects, housekeeping seems to be a low-prestige element of the operation. It is actually one of the most important in a hotel, as it has to be done well if the customers are to be satisfied. The managerial tasks associated with housekeeping—assignments, supervision, inspection, etc.—are also crucial, if less visible to the guests. In addition, within the staff there is a clear hierarchy, from the maids upward through the engineers to the managers. To the extent that Josè could position himself as affiliated with management, his status in the organization rose, despite his being an intern and a high school student. Thus on a pragmatic level, the work was central to the business, and exposed the student to reasonably intense contact with a broad spectrum of activities and roles. It also enabled Josè to develop an identification with a community of practice in the organization: management, and thus to deepen his involvement and heighten his motivation.

What factors shaped the hotel housekeeping operation as a learning environment? The *culture of the workplace*, tied up in the history of the hotel industry, included a clear distinction between managers and workers, and an entrenched conception of their respective roles and characters. The fact that, even as an intern, Josè was affiliated with the manager of the office gave him immediate entry into the knowledge-use system. Organizationally, the hotel was very hierarchical, but Josè's position gave him functional access to a wide range of activities. He had occasion to interact meaningfully with room attendants, housemen and engineers; with front desk and other hotel employees; and even

with guests. Mr. M— seemed dedicated to inducting Josè into the management mentality so that he could off-load some of his work onto the student.

Pedagogical strategies

In each workplace, how were the interns instructed on a day-to-day basis? How did they learn? We can identify some general strategies by which individuals organize the distribution of knowledge in a work environment. The following types are not mutually exclusive—more than one may occur in a given scene—but they represent basic choices about how to go about inducting newcomers into knowledge-use systems.

Front-loaded instruction: In this model, some workplace veteran—a supervisor, a trainer, or an expert colleague—gives the newcomer extensive off-task exposure to work-related knowledge before engaging her in work activities; the goal is to prepare the worker for the full range of knowledge demands of her position. Generally, the supervisor determines what knowledge will be transmitted.

On-the-job training: The new worker starts performing real tasks, and is given coaching—specific instructions, practice and feedback—by a co-worker or trainer. The supports provided for the neophyte may be gradually removed as she gains in proficiency and knowledge, as in Bruner's (1981) concept of *scaffolding*. The trainer may decide what the newcomer needs to know, but the learner may contribute to that decision as well; moreover, the curriculum may be shaped by the new worker's pre-existing skills and knowledge.

Just-in-time instruction: The worker engages in real tasks, when she encounters work that demands new skills or information, off-line instruction or on-the-job training is

provided. This instruction, while intentional, is more sporadic or occasional than the front-loaded variety. The curriculum may be determined either by the trainer or by the learner; the timing and specific content will be a function of the particular work process.

Back-loaded instruction: In this model, newcomers participate in work activities, usually in peripheral roles, for a while, and then are given more explicit instruction and feedback; the strategy is to let the learner get a feel for the operation, and then clarify the knowledge in use. The neophyte may have some input into the content of the instruction ("Here's what I didn't understand"), but the trainer still maintains basic control.

Mutual self-instruction: Groups of newcomers are assigned tasks, and work out activities among themselves, without the direct intervention of a supervisor or trainer. The curriculum here is shaped by the workers as a group, generally on an as-needed basis.

Laissez-faire (also called *sink or swim*): The neophyte is set to work on a task without instruction either before, during or after the episode. The content of the learning is entirely determined by the actual activities, not by someone intentionally deciding what the learner needs to know. In general, the success of this strategy depends on one or more of several factors: the task is simple enough to figure out without help; the worker has the leeway to engage in trial-and-error iterations of the task; the newcomer is a particularly adept learner and problem-solver.

Observation: The new worker actually participates only in peripheral tasks, but has opportunities to watch and possibly ask questions about a broader range of activities.

Mentoring: This term, which is widely used in work-based learning circles, refers more to the relationship between the student and her supervisor than to specific actions or tactics. Generally, the supervisor provides clear advice and feedback, sometimes during the work process and sometimes off-task, calculated to help the student understand the environment and her role in it. The mentor tends to be more supportive of the student's learning and development than a mere supervisor would be.

These strategies will vary along such dimensions as the following: *timing*—whether the process kicks in before, during or after the work activity; or whether the teaching/learning happens as a part of the work process (on-task) or apart from it (off-task); *control* or *frame* (Bernstein, 1975)—the extent to which the transmission of knowledge is controlled by the veteran/supervisor, by the learner(s) or by others; *intentionality*—the extent to which the teaching/learning process is intentional, as opposed to incidental (happening as a function of the actual work process); and *resource demands*—the extent to which instruction requires time, materials, money or personnel energy.

Pedagogical tactics

Within each of these general strategies, a variety of specific tactics may be used for engaging the newcomer with situated knowledge-use. These tactics can appear in different phases of the task episode—establishing, accomplishing and processing—and in different stages of the newcomer's trajectory of learning. Which tactic appears at any given moment in the work activity will depend on the factors identified earlier.

Lecturing: A veteran (supervisor, trainer, co-worker) gives the newcomer extensive verbal information before the task episode begins; he lays out a comprehensive picture of the activity and the knowledge it demands.

The tour: The veteran shows the newcomer around the workplace, explaining operations and identifying personnel.

Modeling/demonstrating: The veteran performs the task as the newcomer observes; the veteran may or may not provide verbal commentary on the activity; this demonstration may be either an actual performance of the task or an off-task simulation.

The dry run: Often before the intern starts the real work, the supervisor has her try an off-task simulated performance to get the hang of the process.

Giving orders: Simply by telling the intern to perform a particular task, the supervisor provides information about what to do and how to do it.

Helping out: The newcomer takes part in the work activity as a peripheral participant, performing marginal elements of the task but watching the whole operation.

Coaching: The newcomer takes primary responsibility for performing a task, but gets simultaneous advice and feedback from a veteran on the sidelines.

Q&A: The newcomer asks questions while the task work proceeds; she may or may not be functioning as a peripheral participant, but she does interject specific questions.

Critical feedback: Veterans give the newcomer negative feedback as she performs the task, telling her when she has done things incorrectly; the process may be informal (*teasing, hazing*) or formal (*disciplining*).

Testing and *checking*: The veteran quizzes the newcomer on task knowledge and/or observes carefully to determine whether she knows what she is doing.

Storytelling: Veterans tell stories about successes and failures as the newcomer listens.

Reminding: The supervisor or trainer restates knowledge items after having exposed the newcomer to them before.

Trial and error: The newcomer tries out various solutions to problems, and checks to see how they work out; she adjusts her next performance depending on previous outcomes.

Practice: The intern repeats a task a number of times, and thereby strengthens and deepens her mastery of it.

This list is hardly exhaustive—any more than a list of classroom teaching techniques could be exhaustive—but it does suggest the variety of ways in which newcomers come to participate in the social stock of knowledge in a work environment. The social organization of the tactics varies in several ways: the relationship between the veteran and the learner may be more or less vertical, or more or less collaborative; the knowledge-encounter may be part of the ongoing work process or it may be separated from that activity; the neophyte may be given more or less open access to particular aspects of local lore, depending on the micropolitics of knowledge; the knowledge-in-use may be open to reorganization, or it may be strongly guarded by members resistant to change; the newcomer may be required to master the knowledge, or she may have to fight to get access to it. The possibilities are endless.

Fred

As described above, Fred's tasks at the animal hospital were largely mundane and not likely to bring about substantial learning. The work was simple, and required only rudimentary *front-loaded instruction* to induct him into the necessary knowledge-use. On the other hand, Fred did have occasion to *observe* interesting and complex activities, and to ask questions about what was going on. In that sense and to that degree, the environment was educational for him. During the researcher's first observation, for instance, the intern watched and commented as the veterinarian amputated a cat's tail:

> Willy, another cat, was to have his tail removed. Fred explained to me that his tail was paralyzed and that he was also having trouble urinating on his own ... The technician asked (the doctor) if he wanted Fred to hold the cat while they gave it the anesthesia, but Dr. D- said no ... Dr. D— weighed the cat, and they gave him a shot while the tech held him down. It was a difficult task: The cat was hissing and moving around and obviously did not want to have a shot. Once they succeeded, the cat was out immediately. Dr. D— and the tech placed the cat on the newly clean operating table and stuck a tube down its mouth. Then they discussed how much of its tail to shave, began shaving, and vacuumed up the hair. Then they began "expressing" the bladder, which Fred explained to me ... While the doctor and technician were performing these tasks, Fred remained at the sink just on the other side of the operating room, but he could see in the room perfectly ... He told me in a matter-of-fact way what was going on at each moment ... Fred asked the doctor if the purpose of a cat's tail is to help the cat balance. The technician replied that probably balance is one purpose, but cats seem to do fine without them. Fred continued with his running commentary, saying, "She's sterilizing the area" as the technician rubbed some liquid all over the cat's tail and behind. The tech corrected him, saying the area would be "aseptic," not sterile ... The doctor first made an incision all the way around the tail near its base, then began to cut deeper through the skin ... The tech checked the cat's heart rate. Fred asked, "How much of the tail is actually bone?" The doctor replied, "It's bone all the way down." The doctor continued to cut through skin and then bone ... Fred suddenly left the room ... He was getting a throwaway camera from his bag; he wanted to take a picture of the surgery. Dr. D— and the tech posed with good humor (Observation xiiia1: 50-97).

This episode constituted one of the more fascinating experiences of Fred's internship, but also revealed some of the core pedagogy in the site. When Fred was not engaged in one of his routine tasks, he had the opportunity to watch procedures and activities carried out by the veterinarians and the technicians. The purpose of Fred's observing, it is important to note, was *not* to prepare him to perform any part of these tasks; he would never get to that stage of skill and knowledge, and would always remain a peripheral participant. In fact, the vet rejected the offer to have Fred merely hold the cat down. But there were several potentially educative elements to these scenes. Simply watching gave Fred some information. And he also asked occasional questions of the doctors and the technicians: What's the function of the tail? Is it bone all the way down? Later, as Fred observed a spaying operation, he asked the doctor if they could spay a dog in heat; she replied that it's actually easier then because the relevant organs are slightly enlarged. Off-task discussions like these provided a fair amount of interesting (if fragmented and episodic) information for the student.

Sometimes while Fred was observing an operation, the doctors quizzed Fred about aspects of their activity, even though he was not performing a function in it.

> Dr. V- began to "test" Fred, asking him to explain to me what she was doing. She lifted something red out of the body cavity of the dog, and asked Fred what it was. Fred got the answer wrong. Dr. V— said that she had tied off the blood supply to the two ovaries, and was now tying off the blood supply to the two parts of the uterus ... Fred wondered aloud about the differences between human anatomy and dog anatomy (Observation xiiia3: 176-182).

This episode is an example of a *testing/checking* tactic, although it has the curious quality of being disconnected from the learner's functional participation in the activity.

A range of other tactics appear in the field notes. Fred learned about the sterilization of surgical tools by *helping out* a technician, he prepared a neuter pack, and she prepped the autoclave and tossed the pack into it (Observation xiiia3: 69-71). Another technician taught him about examining slides by the *show and tell* method; she showed him the materials from a dog with leukemia and told him what he was seeing. She also engaged in *storytelling*, relating an incident in which another veterinarian did research on ear mites by putting some in his own ear (Observation xiiia2: 104-108). A number of casual, off-task *conversations* also carried information for Fred: one, for instance, was about asthma in dogs (Observation xiiia2: 121-123); in another, one of the doctors described working in a zoo (Observation xiiia3: 191-197). When Fred made comments about what was going on in surgery, the vets and technicians sometimes *corrected* him; for instance, he referred to "spongy tissue" that Dr. V— told him was "fatty" (Observation xiiia3: 199).

The pedagogy of work in this site, then, involved the student's engaging in a good deal of menial, peripheral support activities and very little of the core work of the clinic. At the same time, however, the doctors and technicians could sometimes take the time to manifest local knowledge through *modeling*, *storytelling*, and *question-answering*. The activity system in the clinic was small enough and visible enough to give Fred a number of opportunities to observe and ask questions about the professionals' activities. Those opportunities clearly enabled him to accumulate some knowledge in the workplace.

Yet we have to ask whether the observations were systematic enough, substantive enough and repeated enough to provide a significant learning experience. He might have

seen enough neuterings to begin to understand the reproductive systems in cats and dogs, but that is not clear; in fact, when the vet tested his knowledge during the researcher's third visit, he answered incorrectly. He witnessed the unusual and fascinating tail amputation, and thereby got a rudimentary feel for a part of feline anatomy; but it is not at all clear that he had other experiences that enabled him to put that knowledge into a larger context. In this sense, the learning environment was probably, on its own, inadequate.

Josè

On Josè's first day, he was taken on *the tour*; Mr. M—, the supervisor, gave Josè and the other interns starting that day a complete tour of the hotel and introduced them to many of the staff. After that Mr. M— adopted a general pedagogical strategy of *on-the-job training* for Josè. He arranged to have the intern take on more and more functions, and to learn them as he did them. Sometimes Josè performed tasks that Mr. M— would have done otherwise, thus freeing the boss up for other responsibilities. On other occasions, the student did work that was useful, but might not have been done if he had not taken it on.

The tactics involved in this process included most of the types mentioned above. During the first observation, for instance, when Josè was answering the phone in the housekeeping office, an assistant manager, R—, was with him and provided *coaching*; sometimes he handed the problem off to her, but often he got advice from her and did the work himself.

> The phone rang again and J asked the person to hold while he asked R about special handicapped equipment. She said yes, get their room number, and he said into the phone, "Someone will be there shortly," and then hung up. The phone rang again, and he took some notes ... For most of the incoming calls, J either handed the phone to R, or held his hand over the mouthpiece while he asked R what to do (Observation xv1a1: 139-152).

Earlier, Mr. M— or R— had most likely *modeled* the phone-answering task, as well as *lectured* him about the general procedures. Making the assistant available to Josθ as a coach represented a form of *scaffolding*, since her support could be gradually phased out as his knowledge-use grew. Indeed, by the end of the term, Josè himself was coaching other interns who had not yet been introduced to this role.

Most often during the researcher's visits, José *helped out*, carrying out administrative tasks that Mr. M- might have done. But the supervisor was not present all the time; often, the *establishing* phase was clear and simple enough to carry Josθ through the *accomplishing*. On occasion, José worked with Mr. M— in a way that educated José in some aspect of the management process and ideology. For instance, the intern reported that he and Mr. M— had "taken wet rags and wiped down some of the walls, which had 'scared' the housemen, because it meant the boss was doing their job" (Observation xvia1: 132-133). This event taught José about both management tactics and ideology.

Functionally, the organization managed to make learning resources available to José on a timely basis: coaching from veterans; substantial tasks that required some problem-solving and some discretion; room to make mistakes and rectify them. Moreover, it provided adequate feedback (on some aspects of the work, at least; he did not develop interactional skills as much as he might have), so he could learn from each opportunity. Yet this is not to say that the internship experience was educationally

perfect. On some occasions, José was shut out of certain meetings where he might have encountered a broader range of knowledge-in-use. On others, he did not get feedback that might have honed his performance. His identification with the management point of view raises a perplexing pedagogical issue: How could he have learned more? We turn to this question next.

SCHOOL-BASED PEDAGOGY FOR WORK-BASED LEARNING

Through the above type of analysis of a workplace and the activities available there to an intern, educators can determine the extent to which the workplace pedagogy should be augmented with classroom pedagogy. Both Fred's and José's placements offered opportunities for learning of all the different sorts listed at the beginning of this paper: occupational, technical and workplace readiness skills; career exploration and planning; psychosocial development and preparation for adult responsibilities; and reinforcement of academic learning. Fred, through becoming part of the daily routine of an animal hospital, was certainly engaged in career exploration, even though the hands-on work he was allowed to carry out was mostly menial. José certainly acquired several kinds of new skills, and his work experience was full of opportunities for thinking and learning about complex issues such as organizational processes, technical operations and social relations. What did their schools do to help them gain more from their internships?

In the many programs we studied, we found four commonly-used school-based strategies for ensuring student learning at the workplace: journal-writing, the creation of formal learning or training plans, holding an internship class or seminar, and requiring

final papers and presentations. Below, we describe each and give examples from our field research.

Journals

Almost all of the programs we visited, including those of Fred and José, require students to keep journals of their work-based learning experience. Students are expected to write an entry for every day or so they are on the job, and teachers or internship supervisors periodically collect and read the journals. Programs differ with regard to specifying the content of the journal entries. Some ask that students only describe what they do every day, others want students to emphasize their feelings about what they do, and still others give students more structure in the form of themes or questions to respond to.

On the most practical level, journals serve as a quality control method for school personnel who do not have the time to actually visit the internship worksites. By reading the journals regularly, staff can monitor the students' activities and gain a sense of any problems that are occurring. If a student repeatedly writes, "Today I did the same thing I did yesterday," then staff know it is time for a telephone call or visit to the worksite supervisor. In the case of José, the journal seemed to serve this basic purpose, as his entries consisted of only two or three lines describing his tasks of the day. For example, on the day of observations quoted from above, this is all José wrote (besides noting the researcher's visit):

> I spent the day at the (hotel) in the office. It was really busy. I was given some paper work to do along with answering phones, which never stopped ringing.

On a deeper level, journals can serve to provoke reflection on the part of the students, and as an outlet for the expression of thoughts or feelings that cannot be declared at the worksite. Fred wrote in his very first journal entry:

> The emotional part of the job will probably be the hardest part to deal with. Once I begin to understand what procedures are high risk and what's not. I figure once I understand these factors, I may feel more empathy toward the animal. I mean right now I feel for the animal but don't truly understand what's going on so there may be more to feel.

Several weeks later, an animal was euthanized during his work time. He wrote:

> I almost lost it. I remembered seeing the dog a few days earlier and he was looking like he was getting better. Today he looked fine for an extremely old dog. It was very hard on everyone else there too because they had known Harry longer than I. They managed to keep it together. I felt bad ... It's a tough choice. When is the right time to put away something you really love. I am glad I wasn't there when he was put under. I am not ready for that. Not yet at least.

These words show that Fred was learning that jobs in veterinary medicine do have an emotional aspect to manage. The comments also could serve as a starting point for a classroom discussion on euthanasia, or program staff could urge Fred to discuss these issues with his colleagues.

We did hear from some students that they found journal-writing to be tedious, and a burden. Some were unsure of the point of the journals. Other students complained that they spent time on their journals but the teachers made no comments on them; the perspective of many of the teachers was that they did not want to be perceived as evaluating the journals. We find that overall journals are a worthy exercise, but their purpose and format must be made clear between teachers and students.

Learning Plans

Some, but not all, of the programs we studied created learning plans for the internships. Learning plans are usually written outlines of what the students are expected to do and learn on the job. Some are generic (the same outline exists for all students at all workplaces), while others are more individualized. Sometimes the plan lists in detail what the student will learn at the workplace, such as in the Philadelphia School-to-Careers program, where the "Training Plan" lists the tasks to be accomplished weekly on check-off sheets. In other cases, the plan lists assignments the student will complete, but not necessarily at the workplace. José's program does not use learning plans. In Fred's case, he was to identify new learning goals every month and these were written on his monthly internship evaluation forms; for example, one of his goals was "learn how to deal with the public."

City-As-School, an alternative high school in New York City where students earn most of their credits through internships, has been using Learning Experience Activities Packets ("LEAPs") for years. The purpose of the LEAP is to list the objectives for the internship, so that they are clear to both student and employer, and to provide a way for the student to document what he or she learns. LEAPs are tailored to each specific workplace. For example, the LEAP for students interning at the New York City Police Department requires students to keep a journal that reflects on their experiences, write an organizational profile, read books about police work, interview three police officers, and research and write a final report (more detailed instructions are included for each of these activities).

The Financial Learning Academy of Genessee County (FLAG) in Flint, Michigan, uses assignment frameworks called "Tool Boxes" to provide students with a framework for learning at their worksites. In this program, which has a classroom in a local bank, students follow a finances-based curriculum while simultaneously accepting unpaid and paid projects in the bank and other area financial institutions. When a student begins a project, he or she is given Tool Box 1, which outlines what the student can learn simply by observing the workplace surroundings and employees. For example:

> How do you see workers acting—towards their work, towards their fellow workers—towards customers both telephone and walk-in ... How do you see workers using their time—what do they read—write—time on phone—what are their scheduled hours—lunch break how used ... What skills and assignments do you see that workers have to do to complete their jobs—technical skills—interpersonal skills—customer relation skills—accounting skills—filing skills—accuracy skills ...

At the end of the second week of a project, students must turn in a paper with answers to these questions. They then receive Tool Box 2, the purpose of which is to help them reflect on personal and technical skills. For example:

> Describe the project manager and employees you are working for and give titles—tell what the department does—how does this department fit into the whole financial industry—What opportunities exist for advancement in this department—where do most employees in this department come from—How would you describe the interpersonal relations of this department ...

Internship Class or Seminar

Several programs require students involved in work-based learning to attend a class or seminar together. The focus of these classes ranges from general workplace issues to the students' particular experiences. For example, one component of the Academic Internship Program at Champlain Valley Union High School, a comprehensive

High School in Vermont, is a weekly internship seminar. Students share information with each other about their workplaces. They also write a weekly paper on a given topic such as comparing two similar occupations. At City-As-School, students also must attend an internship seminar. The class we observed had the teacher dividing the students into pairs, who then shared their internship experiences, followed by an in-class writing exercise. Simon, Dippo, and Schenke's book, *Learning Work: A Critical Pedagogy of Work Education* (1991), gives many suggested classroom activities to go along with internships. The goal of most of the activities has to do with helping students think about and understand larger issues about work such as work design, productivity, inequality and work, and gender issues in the workplace.

Fred attended a weekly internship seminar. He shared many of his observations (particularly of the surgeries) with his fascinated classmates. He also was assigned books to read on veterinary medicine, and had many writing exercises. The seminar added value to his experience. José, however, whose internship took place during the summer, had no such connected class, and so lacked the regular debriefing Fred received. A parallel class could have helped José better understand the worker-management issues he was confronted with daily. For example, one day José was told by Mr.— to go up to the second floor of the hotel and check to see if a worker was shampooing the carpeting there. When José did so, the worker yelled at him, saying "They don't have to send no babysitter to watch me do my job." In an interview, José said:

> I did feel uncomfortable ... That's why people didn't really like me much. 'Cause it's like, I am just a little kid, getting a high position. I understand, it must have made him feel very uncomfortable. I understand where they're coming from. I wouldn't want no five-year-old kid to be my boss. (Interview xvii2: 874-911)

While José was mature enough to have some understanding of this situation, and the management/labor themes that were repeatedly evident during his internship, he did not have the opportunity to deconstruct these issues with teachers or other students in a structured way.

Final Papers, Projects, and Presentations

Finally, most of the programs we studied require student interns to complete and also sometimes present a final paper or project. Students in the FLAG program, discussed above, must present to their fellow students their discoveries from the Tool Box activities. At Champlain Valley Union High School, on "Graduation Challenge" day, students in the Academic Internship Program turn in papers and make presentations about their internships to panels of teachers, parents, and employers. Presentations are rated according to three criteria: delivery, organization, and content; for each area students can receive a grade of unsatisfactory, pass, or high-quality.

Fred's program required him to write a paper and make a presentation; his topic was veterinary medicine. He started by giving the purpose of his internship as "to see if I could handle the hardships of veterinary medicine." He described his first few weeks at the animal hospital, explaining how he became more confident in his tasks over time. He described the tasks, the other workers, and some of the surgeries he observed. He then answered questions from the audience about the kinds of animals the hospital cared for, and about preventive animal health.

José's program required him only to complete two short papers: one on his supervisor, which was to be drawn from an interview with him; and the other on what he

thought about his internship. The purpose of the interview-based paper was for José to understand the education and qualifications needed for a career in the hotel industry, as well as to gain an idea of a hotel employee's career path. The goal of the second paper was to have him reflect on his experience.

Summary

While our analysis of Fred's workplace seemed to show that his internship was not as rich as José's, a look at the pedagogy back at the school demonstrates that Fred's experience was not as deficient as one might have first thought. Fred set learning goals, he attended a weekly seminar with a teacher and other student interns, and he wrote and presented a paper on his experience. José clearly had more tasks and more responsibility at the hotel than Fred had at the animal hospital, but José lacked a structured way to reflect on his days at the workplace, or to share or compare his internship with others. School-based pedagogy can clearly make a difference in what and how much a student learns in work-based learning.

CONCLUSION

These case studies illustrate the complexity of analyzing situated pedagogy. The process by which neophytes in a workplace come to use new forms of knowledge is sometimes obvious, as in explicit teaching events (training sessions, workshops), and sometimes not. The social organization of knowledge-use more often serves the instrumental needs of the organization than it does the learning needs of the newcomers, but meeting those learning needs often improves the productivity of the organization. On

the other hand, some organizations operate efficiently by compartmentalizing knowledge-use in a way that perpetuates the peripheral status of newcomers, and thwarts their learning. Determining the way work activities shape members' participation in knowledge-use is a subtle challenge.

These issues and dynamics deserve attention from educators responsible for placing, guiding and evaluating work-based learners. Knowledge-rich organizations like hospitals and large corporations do not always prove to be the most educational, because they sometimes classify and frame the use of knowledge in ways that bar newcomers and other marginal players from growing participation in communities of practice. Work systems with weak classification and frame often afford interns greater access to that participation, and thus increase their learning. The framework sketched out in this chapter can be a tool for the educator who is trying to distinguish one type of learning environment from the other.

Rather than placing students in internships and then assuming they will learn something there, educators should enhance the learning opportunities at the workplace with connected activities and exercises back at school. Above we have described ways to ensure that student interns gain new knowledge. However, ensuring student learning is not entirely the responsibility of program staff. We were told repeatedly by school-based personnel and by employers that students need to take more responsibility for their own learning. Student interns are encouraged to assert themselves on the job, particularly with regard to asking questions and requesting challenging work.

As Roger Simon writes, the aim of work-based pedagogy should be to "work with students in such a way as to enable them to participate more fully and effectively in determining the practices that inform their working lives ... (and) on the central task of helping student to work both on and with their experiences to deepen their sense of how the requirements of the work world have been shaped" (Simon et al., 1991, p. 13).

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